

## CLAIMS

1. A connection on a liquid storage vessel to secure an internally mounted removable, flexible, non-molded liner to an inside surface of the storage vessel, the connection comprising:

a plate having at least two projecting threaded studs and at least one liquid conducting tube through the plate;

a portion of the flexible, non-molded liner mounted between the plate and an inner surface of the liquid storage vessel adjacent an annular opening in the liquid storage vessel;

the threaded studs projecting through the annular opening in the liquid storage vessel;

a tank head flange or threaded pipe welded in place on an outside surface adjacent the annular opening in the liquid storage vessel; and

means for securing the studs firmly in place so that the plate presses the portion of the flexible liner tightly against the inner surface of the liquid storage vessel adjacent the annular hole.

2. The connection according to claim 1 wherein the means for securing the studs in place is a lower annular flange of a flange cap integral with, but spaced apart from, an annular upper flange, the annular upper flange affixed to the tank head

flange welded to an outside edge of the liquid storage tank around the annular opening.

3. The connection according to claim 2 wherein nuts are fixedly attached to the studs passing through openings in the lower flange of the flange cap and fastener bolts and nuts connect the upper flange of the flange cap to the tank head flange.

4. The connection according to claim 3 wherein an O-ring is mounted between the lower flange of the flange cap and the flexible liner.

5. The connection according to claim 1 wherein there are eight threaded studs projecting from the plate.

6. The connection according to claim 1 wherein there are two liquid conducting tubes through the plate.

7. A connection on a liquid storage vessel to an internally mounted removable flexible, non-molded liner, the connection comprising:

a plate having two projecting threaded studs and a tube through a bore in the plate;

a portion of the flexible, non-molded liner mounted between the plate and an inner surface of the water storage vessel adjacent an annular opening in the liquid storage vessel;

an internally threaded pipe welded around the annular

opening on an outer surface of the liquid storage vessel;

a threaded insert threadable engaging the threaded pipe, the threaded insert having a pair of through bores for receiving the two studs, a through bore for receiving the tube and a fastener attached to the ends of the studs projecting through the insert so that upon tightening the threaded insert, the portion of the flexible liner is tightly pressed against the inner surface of the liquid storage vessel.

8. The connection according to claim 7 wherein an O-ring is positioned between the plate and the portion of the flexible liner to seal the portion of the flexible liner to the plate.

9. A method of connecting a removable flexible, non-molded liner to an inside surface of a liquid storage vessel, the steps comprising:

providing a plate having multiple projecting threaded studs and at least one through bore receiving at least one liquid conduit tube,

inserting a flexible, non-molded liner into an annular opening in the liquid storage vessel, the liner having an annular opening through which the at least one liquid conduit tube passes;

welding a threaded pipe or tank head flange to an outer surface of the liquid storage vessel around the

annular opening in the liquid storage vessel;

threading the multiple projecting threaded studs and at least one liquid conduit tube through the liner and through the annular opening in the liquid storage vessel so that the plate abuts against a portion of the liner and the portion of the liner presses against an inside surface of the liquid storage vessel adjacent the annular opening;

providing a means for engaging the studs; and

tightening down on the studs with threaded nuts so that the portion of the liner is tightly pressed against the inside surface of the liquid storage vessel.

10. The method according to claim 9 wherein a flange cap having an upper and lower flange spaced apart is provided as the means for engaging the studs, the lower flange is connected to the multiple studs through multiple holes in the lower flange and the upper flange is connected to the tank head flange by fasteners passing through multiple corresponding holes in the upper flange at the tank head flange; and tightening nuts on the studs and the fasteners to complete the connection of the liner to the liquid storage vessel.

11. The method according to claim 9 wherein a threaded insert having a pair of bores for receipt of two studs and a central bore for receipt of the liquid conduit tube is threaded to the threaded pipe, a nut is threaded to an end of the stud and the

threaded insert is turned within the threaded pipe to press the liner against the inner surface of the liquid storage vessel.

12. A connection on a liquid storage vessel to secure an internally mounted removable, flexible, non-molded liner to an inside surface of the liquid storage vessel, the connection comprising:

- a plate having multiple projecting threaded studs and at least two liquid conducting tubes through bores in the plate;

- a portion of the flexible, non-molded liner mounted between the plate and an inner surface of the liquid storage vessel adjacent an annular opening in the liquid storage vessel;

- the threaded studs projecting through corresponding bores in the liner around an annular opening in the liner for passage of the at least two liquid conducting tubes;

- a tank head flange having multiple bores for receipt of fasteners, the tank head flange welded to an outside surface adjacent the annular opening in the liquid storage vessel; and

- a flange cap integrally having an upper and lower annular flange spaced apart, the upper flange having multiple bores corresponding to the bores in the tank head flange and fastened together with the tank head flange,

the lower annular flange having bores corresponding to the number of studs and tightly fastened together with the studs by a threaded nut inserted over an end of each stud.

13. A connection according to claim 12 wherein an O-ring is inserted between the portion of the liner and the lower annular flange of the flange cap.

14. A connection on a liquid storage vessel to secure an internally mounted removable, flexible, non-molded liner to an inside surface of the liquid storage vessel, the connection comprising:

a plate having two projecting threaded studs and a liquid conducting tube through a central bore in the plate;

a portion of the flexible, non-molded liner mounted between the plate and an inner surface of the liquid storage vessel;

the two threaded studs projecting through corresponding bores in the liner around an annular opening in the liner for passage of the liquid conducting tube;

a threaded pipe welded to an outside surface adjacent the annular opening in the liquid storage vessel;

a threaded insert having a bore on each side of a central bore, the central bore receiving the liquid conducting tube and the other bores each receiving one of

the studs;

a nut tightened down over an end of the stud protruding through the threaded insert; and

the threaded insert turned a sufficient distance within the threaded pipe to press the portion of the liner against the inner wall of the liquid storage vessel.

15. The connection according to claim 14 wherein an O-ring is positioned between the plate and the portion of the liner inside the liquid storage vessel.

16. The connection according to claim 1 wherein the liquid storage vessel contains water.

17. The connection according to claim 7 wherein the liquid storage vessel contains water.

18. The method according to claim 11 wherein the liquid storage vessel contains water.

19. The connection according to claim 12 wherein the liquid storage vessel contains water.

20. The connection according to claim 14 wherein the liquid storage vessel contains water.